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WHAT IS CLAIMED IS:

1. A bearing unit comprising:

a housing;

a shaft passing through said housing and rotatably supported on said housing, said shaft defining an axial direction thereof; and

a pair of rolling bearings disposed between said housing and said shaft and fitted to two positions on said shaft, which are spaced apart from each other in the axial direction, at least one of said rolling bearings having an inner ring press-fitted to said shaft, said inner ring defining an intermediate portion in the axial direction at least partially including an inner raceway surface,

wherein a reduced diameter part having an outer diameter smaller than the inner diameter of said inner ring and a predetermined width in the axial direction is formed on said shaft at a position corresponding to said intermediate portion of said inner ring so that inner circumferential surfaces located at both ends of said inner ring in the axial direction are interference fitted to said shaft and the inner circumferential surface at said intermediate portion thereof is clearance fitted to said shaft.

2. The bearing unit according to claim 1, wherein each of said pair of rolling bearings is a ball bearing

including a plurality of balls and an outer ring, and

further wherein a center position of said reduced diameter part of said shaft in the axial direction is substantially set at an intersection position of said inner raceway surface with a contact angle line connecting points that said ball contacts with said inner and outer rings.

3. The bearing unit according to claim 1, wherein a center position of said reduced diameter part of said shaft in the axial direction is set at a substantially intermediate position of said inner raceway surface.

4. The bearing unit according to claim 1, wherein said predetermined width of said reduced diameter part is set to be larger than an axial width of said inner raceway surface.

5. A bearing unit comprising:

a housing;

a shaft passing through said housing and rotatably supported on said housing, said shaft defining an axial direction thereof;

a pair of rolling bearings disposed between said housing and said shaft and fitted to two positions on said shaft, which are spaced apart from each other in the axial

direction;

a compression spring disposed between said outer rings of said pair of rolling bearings while being wound around said shaft, for applying a preload to said outer rings in such a direction as to move away from each other;

sealing plates located at both ends of said respective outer rings of said pair of rolling bearings, for preventing a lubricant filled between said outer ring and said inner ring from leaking therefrom; and

spring seats for positioning ends of said compression spring, said spring seats including stepped parts axially formed on said sealing plates, which are located at inner ends of said outer rings opposed to each other.

6. A bearing unit comprising:

a housing;

a shaft passing through said housing and rotatably supported on said housing, said shaft defining an axial direction thereof;

a pair of rolling bearings disposed between said housing and said shaft and fitted to two positions on said shaft, which are spaced apart from each other in the axial direction;

a compression spring disposed between said outer rings of said pair of rolling bearings while being wound around

said shaft, for applying a preload to said outer rings in such a direction as to move away from each other;

sealing plates located at both ends of said respective outer rings of said pair of rolling bearings, for preventing a lubricant filled between said outer ring and said inner ring from leaking therefrom; and

spring seats for positioning ends of said compression spring, said spring seats including stepped parts axially formed in inner ends of said outer rings opposed to each other for retaining said sealing plates.

7. A bearing unit comprising:

a shaft defining an axial direction thereof;

a pair of rolling bearings fitted to two positions on said shaft, which are spaced apart from each other in the axial direction, said rolling bearing including a retainer for guiding rolling elements;

a compression spring disposed between said outer rings of said pair of rolling bearings while being wound around said shaft, for applying a preload to said outer rings in such a direction as to move away from each other; and

spring seats attached to said pair of rolling bearings, for positioning ends of the compression spring, said spring seats serving as sealing plates for preventing a lubricant filled between said outer ring and said inner ring from

leaking therefrom,

wherein an inner side of said spring seat defines a retainer-interference avoiding clearance for avoiding an interference with the back side of said retainer.

8. The bearing unit according to claim 7, wherein said spring seat extends inwardly in the radial direction so that at least one labyrinth is provided between the inner surface of said spring seat and at least one of an end surface of the inner ring and said shaft.

9. The bearing unit according to claim 7, wherein said spring seat is made of a plastic material.

10. The bearing unit according to claim 7, wherein said spring is a coned disk spring.

11. The bearing unit according to claim 7, wherein said bearings are fastened to said shaft by press-fitting and adhesion.

12. A rolling bearing unit comprising:

a holding member having a first cylindrical peripheral surface, said holding member defining an axial direction and a radial direction thereof; and

a plurality of ring members each having second and third cylindrical peripheral surfaces, which are coaxially aligned with each other, said third cylindrical peripheral surfaces having a raceway surface, said plurality of ring members being fitted to said holding member with a predetermined interval in the axial direction such that said second periphery surface of said ring member is interference fitted to said first periphery surface of said holding member,

wherein the interference between said first and second periphery surfaces is set to be 4μm or smaller, a run-out of said holding member in the radial direction when said holding member is rotated is set to be 2μm or less, and said ring members are fastened to said holding member by the combination of the interference fitting and adhesion.

13. A rolling bearing unit comprising:

a shaft having a cylindrical outer peripheral surface, said shaft defining an axial direction and a radial direction thereof; and

a plurality of rolling bearings held on said shaft with a predetermined interval in the axial direction such that inner rings of said rolling bearings are interference fitted to the outer peripheral surface of said shaft, and said rolling bearings being subjected to a preload,

wherein the interference between said shaft and said

inner ring is set to be 4μm or smaller, a run-out of said shaft in the radial direction when said shaft is rotated is selected to be 2μm or less, and said inner rings are fastened to said shaft by the combination of the interference fitting and adhesion.

14. The rolling bearing unit according to claim 13, wherein a recessed portion is formed in the outer peripheral surface of said shaft at a position facing the inner peripheral surface of said inner ring, and an adhesive is applied to said recessed portion.

15. The rolling bearing unit according to claim 14, wherein at least one of the ends of said recessed portion extends outside from the end of said inner ring in the axial direction and is exposed to outside.

16. The rolling bearing unit according to claim 13, wherein said recessed portion is formed around the entire circumference of said shaft, and the outer peripheral surface of said shaft at which said recessed portion is formed in a cylindrical surface.

17. A method of assembling a rolling bearing unit having:

a shaft having a cylindrical outer peripheral surface, said shaft defining an axial direction and a radial direction; and

a plurality of rolling bearings held on said shaft with a predetermined interval in the axial direction such that inner rings of said rolling bearings are interference fitted to the outer peripheral surface of said shaft, and said rolling bearings being subjected to a preload, said method comprising the steps of:

interference-fitting said inner rings onto the outer peripheral surface of said shaft with the interference of 4μm or smaller;

measuring a run-out of said shaft in the radial direction while rotating said shaft;

when said run-out is in excess of 2μm, minutely displacing a fitting surface between said shaft and said inner ring by applying a force to a fitting portion therebetween so that said run-out is reduced to be 2μm or smaller, to thereby reduce a residual stress in said fitting portion; and

bonding said inner rings to said shaft of 2μm or smaller in run-out.